

Appendix 1-A

Business Plans

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TO
Fresno to Bakersfield Section of the HST Project
Final Environmental Impact Report (FEIR)/Final Environmental Impact Statement (FEIS)
March 19, 2014

PURPOSE

This Appendix provides additional information regarding the benefits associated with the long term operation of the high-speed train project. The Appendix briefly summarizes key project benefit information from the Fresno to Bakersfield Section Project FEIR/FEIS, and describes assumptions about the high-speed train system upon which those benefits were identified. This Appendix provides additional information on how those benefits may be lower for an undefined period of time than as described in the Fresno to Bakersfield Section Project FEIR/FEIS, based on scenarios and assumptions contained in the Revised 2012 Business Plan, which was adopted by the Authority Board on April 12, 2012 as well as the Draft 2014 Business Plan, February 2014. This information is intended to reflect the potential range of outcomes for high-speed train project benefits in the future, and to make the information about the range of benefits available to inform the decision making process.

This additional information is addressed in this Appendix and is to be considered as part of the Fresno to Bakersfield Section Project FEIR/FEIS. This additional information does not constitute a change in the proposed HST system, and does not identify new or more severe adverse environmental impacts, or changes to the discussion of adverse environmental impacts from the HST system. Neither does the additional information change the feasibility of any alternatives or mitigation strategies that were considered infeasible or not reasonable for purposes of project-level analysis. This additional information is solely for the purpose of providing a comparison of the analysis provided in the Revised 2012 Business Plan, the Draft 2014 Business Plan and the Fresno to Bakersfield Section Project FEIR/FEIS.

I. ENVIRONMENTAL BENEFITS DESCRIBED IN FRESNO TO BAKERSFIELD SECTION PROJECT FEIR/FEIS

The Fresno to Bakersfield Section Project FEIR/FEIS includes information on project benefits. The benefits include reduced vehicle miles travelled (VMT), reduced energy use for transportation, and reduced air pollution from transportation sources, including reduced emissions of greenhouse gases (GHGs). These benefits were derived based on the assumption in the Fresno to Bakersfield Section Project FEIR/FEIS that the entire 800-mile system (Full System-both Phase 1 and 2) would be operational and serving 69 to 98 million riders annually in 2035. The low forecast of 69 million riders annually was based on HST fares set at 83% of airfares and the higher forecast of 98 million riders was based on an assumption of HST fares set at 50% of airfares. The higher fare structure, and resulting lower ridership forecast was provided as a conservative estimate of benefits associated with implementation of the project. These ridership estimates were used as the basis to assess project benefits in 2035 in the areas of vehicle miles travelled, air quality, and energy and to compare them to the No Project Alternative in 2035 (FEIR/FEIS, Chapter 2, Table 2-16).

BENEFITS FROM REDUCTION IN VMT

The high-speed train project would provide a new travel mode and divert automobile trips to high-speed train trips. The Fresno to Bakersfield Section Project FEIR/FEIS identified a statewide VMT reduction of

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approximately 21 to 31 million miles daily with the implementation of a HST project as compared to the No Project Alternative in 2035 (FEIR/FEIS, page 3.3-54). The diversion from automobile to HST was estimated to lead to a 7 to 10% statewide reduction in VMT on the state highway system (7% if based on 83% of airfare, 10% if based on 50% of airfare (FEIR/FEIS, page 3.2-37). This equates to approximately 7,700 tons of CO₂ per day (FEIR/FEIS, Table 3.3-13, page 3.3-74). The reduction in both automobile and air travel VMT would provide benefits in the form of reduced congestion on both the state's highway system as well as at airports. Within the Fresno, Kern, Kings and Tulare counties project area, the VMT reduction is estimated at 5.4 to 8.0 million miles daily (FEIR/FEIS, Table 3.3-16, page 3.3-75).

BENEFITS FROM REDUCTION IN AIR POLLUTION AND GHG EMISSIONS

The high-speed train project would decrease air pollution statewide by reducing pollutants generated by automobile and aircraft combustion engines, as a result of the reduced automobile and aircraft VMT and reduced congestion. The Fresno to Bakersfield Section Project FEIR/FEIS calculated reductions for statewide emissions of CO, PM₁₀, PM_{2.5}, NO_x, VOC, and CO₂. As compared to the No Project Alternative in 2035, all air pollution emissions would be reduced. (FEIR/FEIS, Chapter 3.3, Table 3.3-9, page 3.3-66 and Table 3.3-13, page 3.3-73) The reduction in greenhouse gas emissions statewide was estimated to be approximately 2.5 to 1.7 million metric tons per year of CO₂ emissions for the HST when compared to the No Project Alternative. The 1.7 million metric tons reflects the benefits associated with a fare set at 83% of airfare and the 2.5 million metric tons represents benefits associated with a fare set at 50% of airfare.

BENEFITS FROM REDUCTION IN ENERGY USE

The high-speed train project would provide a new travel mode, divert automobile trips, also divert trips from air travel, and result in less energy use for transportation. As compared to the No Project Alternative in 2035, the HST would reduce transportation energy consumption by 63,262 (83% of airfare) to 94,760 (50% of airfare) million (MM) Btus daily (FEIR/FEIS, page 3.6-44, Table 3.6-12).

II. ENVIRONMENTAL BENEFITS BASED ON SCENARIOS IN REVISED 2012 BUSINESS PLAN

The Revised 2012 Business Plan is a statutorily mandated plan. Public Utilities Code section 185033 requires the Authority to develop a plan with the content specified in that statute and offer it for public review and comment. Following extensive public comment on the Draft 2012 Business Plan issued in November 2011, the Authority considered and adopted the Revised 2012 Business Plan on April 12, 2012. The Authority's Revised 2012 Business Plan describes an implementation strategy or "road map" for how construction of the high-speed train system is expected to proceed. The plan includes more information about how construction of the different individual sections of the high-speed train system will be phased, when different subsets of the entire system will be operational, what level of ridership can be expected at each phase, and what level of benefits can be expected.

Key Assumptions in Revised 2012 Business Plan

The Revised 2012 Business Plan includes assumptions about how Phase 1 of the high-speed train system from San Francisco to Anaheim will be implemented and become operational that are different from the

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assumptions in the Fresno to Bakersfield Section Project FEIR/FEIS. The Revised 2012 Business Plan refines the phased implementation approach identified in the Fresno to Bakersfield Section Project FEIR/FEIS, and explains that higher costs and funding limitations will result in the high-speed train system being completed and operational later than anticipated in the Project FEIR/FEIS. Specifically, the Revised 2012 Business Plan estimates that an Initial Operating Section will be completed by 2021, with a Bay to Basin phase by 2026, and a Phase 1 Blended System by 2028. A Full Phase 1 system is identified as operational in 2033. The Revised 2012 Business Plan does not include an anticipated date for construction and operation of the Full System (Revised 2012 Business Plan, page ES-14; chapter 2; page 5-17.) As discussed above, the Fresno to Bakersfield Section Project FEIR/FEIS assumed the Full System would be operating and generating benefits in 2027, and achieving full ridership, and the corresponding benefits, by 2035. (FEIR/FEIS, Chapter 2, pages 2-93 to 2-97).

In addition, the Revised 2012 Business Plan presents lower ridership forecasts than were included in the Fresno to Bakersfield Section Project FEIR/FEIS. This is because the Business Plan ridership forecasts are intended to represent a cautious view of the future use of the HST system, for the purpose of developing a conservative, business-focused implementation strategy and plan (Revised 2012 Business Plan, pages 5-17, 5-20, 5-21). The Business Plan doesn't preclude ridership from exceeding these cautious forecasts. In contrast, the ridership projections for the Fresno to Bakersfield Section Project FEIR/FEIS reflected a more robust estimate of ridership to provide a more conservative estimate of potential environmental impacts. Whereas the Fresno to Bakersfield Section Project FEIR/FEIS calculated its benefits with a forecast of 69 to 98 million riders (at 83% and 50% of airfare, respectively) assuming the Full System would be constructed and operating by 2035, the Business Plan includes lower ridership based on forecasts assuming that only Phase 1 Blended is constructed and operating as of 2030. The ridership range includes 16.1 to 26.8 million riders in 2030, 19.6 to 31.8 million riders in 2035, and 20.1 to 32.6 in 2040, as shown in Table 1 below. Ridership would increase beyond 2040 as population and employment growth continues into the future (Revised 2012 Business Plan, page 5-1).

Since project benefits in the form of decreased VMT, reduced air pollution and GHG emissions, and reduced transportation energy use are based on the public's use of the high-speed train system, it is reasonable to expect that the lower ridership forecasts from the Revised 2012 Business Plan scenarios would lead to benefits in these areas accruing more slowly than anticipated in the Fresno to Bakersfield Section Project FEIR/FEIS. (Final Project EIR/EIS, page 1-29). This document provides more information on the level of benefits that can be anticipated if future conditions in 2030/2035/2040 are more similar to the Revised 2012 Business Plan scenarios than to the scenario presented in the Fresno to Bakersfield Section Project FEIR/FEIS. For purposes of this analysis, the benefits are identified as a range based on the Business Plan low and high ridership scenarios (varying in gasoline prices) in 2030, 2035 and 2040, assuming a Phase 1 blended system.

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Table 1 – Phase 1 Blended Ridership Forecasts (Millions)

Scenario	2030	2035	2040
Phase 1 Blended Business Plan High Scenario	26.8	31.8	32.6
Phase 1 Blended Business Plan Low Scenario	16.1	19.6	20.1

Source: Revised 2012 Business Plan, page 5-17

BENEFITS FROM REDUCTION IN VMT

Based on Business Plan ridership forecasts for a Phase 1 blended system, benefits in terms of reduced VMT would occur for both automobile and air travel, but the benefits would be lower than described in the Fresno to Bakersfield Section Project FEIR/FEIS. Benefits would increase over time as ridership builds after the initial start-up time; in 2030 only 55% of anticipated Phase 1 Blended system ridership would be anticipated, with full ridership buildup occurring by 2035.

The automobile VMT reductions for a Phase 1 blended system in 2030, 2035, and 2040 based on Business Plan scenarios are shown in Table 2.

**Table 2 - Vehicle Miles Traveled (VMT) Reduction
(Millions of Miles Daily/Millions of Miles Annually)**

Scenario	2030	2035	2040
High Scenario			
Phase 1 Blended*	-11.6 / -4,000	-11.9 / -4,000	-12.2 / -4,000
Low Scenario			
Phase 1 Blended	-7.3 / -3,000	-7.5 / -3,000	-7.7 / -3,000

Source: Revised 2012 Business Plan, Ridership and Revenue Forecasting Final Technical Memorandum

*2030 VMT estimates for this scenario represent the ridership build up phase which is estimated to be 55% of anticipated Phase 1 blended system ridership.

Air travel diversions for a Phase 1 blended system and a Full Phase 1 system in 2030, 2035, and 2040 based on Business Plan scenarios are shown in Table 3:

Table 3 – Trip and Flight Diversions (Daily Air Trips Removed/Daily # of Flights)

Scenario	2030	2035	2040
High Scenario			
Phase 1 Blended	17,299 / 171	17,736 / 175	18,184 / 180
Low Scenario			
Phase 1 Blended	9,372 / 93	9,608 / 95	9,851 / 97

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As compared to the Fresno to Bakersfield Section Final Project EIR/EIS, which assumed the Full System would be operational in 2035, automobile VMT reduction statewide under a Phase 1 Blended System would be about 36 to 38% of that described in the Fresno to Bakersfield Section Project FEIR/FEIS. Air travel VMT reduction statewide would be about 37 to 45% of that described in the Fresno to Bakersfield Section Final Project FEIR/FEIS (page 3.6-77, Table 3.6-20).

BENEFITS FROM REDUCTION IN AIR POLLUTION AND GHG EMISSIONS

Based on Revised 2012 Business Plan ridership forecasts, benefits in terms of reduced GHG emissions would be lower than described in the Fresno to Bakersfield Section Final Project FEIR/FEIS. Whereas the Fresno to Bakersfield Section Final Project FEIR/FEIS estimated a benefit of reduced GHG emissions of roughly 1.7 to 2.5 million metric tons annually in 2035, Business Plan assumptions would yield roughly 0.88 to 1.4 million metric tons in 2030; 0.84 to 1.4 million metric tons in 2035; and 0.87 to 1.4 million metric tons in 2040 (Memorandum regarding Draft GHG Analysis for Phase 1 Blended – High and Low Scenarios, April 19, 2012.)

BENEFITS FROM REDUCTION IN ENERGY USE

Based on Revised 2012 Business Plan ridership forecasts, benefits in terms of reduced transportation energy use would be lower than the benefits described in the Fresno to Bakersfield Section Final Project FEIR/FEIS. Whereas the Fresno to Bakersfield Section Final Project FEIR/FEIS estimated a benefit of 63,262 (83% of airfare) to 94,755 (50% of airfare) MMBtus daily in 2035, the Business Plan scenarios would yield energy benefits in the range of 31,300 to 52,000 MMBtus daily in 2035 or the equivalent of 5,400 to 9,900 barrels of oil per day.

III. ENVIRONMENTAL BENEFITS BASED ON SCENARIOS IN DRAFT 2014 BUSINESS PLAN

The Draft 2014 Business Plan builds on and updates the 2012 Business Plan. It complies with the statutory requirements originally established for preparing a business plan every two years and it addresses the new requirements established in SB 1029 (Budget Act of 2012). The Authority is seeking public comment, which the Board of Directors will consider as it adopts the Final 2014 Business Plan to submit to the California Legislature on or before May 1, 2014.

The Draft 2014 Business Plan reports the progress made with federal, state, regional and local partners over the last two years and highlights some of the milestones that lie ahead. It presents updated cost estimates and ridership and revenue forecasts, all of which have been informed by and improved through rigorous scrutiny and review by a range of external experts and academics. These new forecasts serve as the basis for the updated financial analysis—which continues to show that the program is financially viable and which, in turn, confirms that the private sector will regard this as an attractive investment opportunity. Following the recommendations offered by the Legislative Peer Review Group (PRG) 4 and the United States Government Accountability Office (GAO), the Authority also applied an analytic technique designed to quantify and better understand the risks associated with its forecasts, which is described in relevant sections of the document. This 2014 Draft Business Plan also includes an updated analysis of the economic impacts of the system that also reflects GAO recommendations.

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Based on the updated ridership and analytic techniques used, the Draft 2014 Business Plan shows the same general trends demonstrated in the Revised 2012 Business Plan, in terms of reductions in VMT, air pollution, GHG and energy use.

IV. OTHER BENEFITS DESCRIBED IN FRESNO TO BAKERSFIELD FINAL PROJECT FEIR/FEIS AND REVISED 2012 BUSINESS PLAN AND DRAFT 2014 BUSINESS PLAN

The Revised 2012 Business Plan and the Draft 2014 Business Plan include an analysis that examines benefits and costs of a Phase 1 Blended System, following industry best practices set by the US Department of Transportation and the California Department of Transportation. Benefits identified in the Business Plan include:

- Travel time savings for HST riders
- Travel time savings for highway users
- Travel time savings for airline passengers
- Reliability in travel times
- Reductions in vehicle operating costs
- Increased productivity for HST riders
- Reduction in parking infrastructure needs
- Airline operator savings
- Improved transportation safety and reduced costs from accidents

The Revised 2012 Business Plan and Draft 2014 Business Plan benefit-cost analyses conclude that the anticipated quantifiable benefits from the high-speed train system exceed anticipated costs, regardless of phasing or scenarios in the Revised 2012 Business Plan (Revised 2012 Business Plan, Chapter 9; California High-Speed Rail Benefit-Cost Analysis Report, Draft 2014 Business Plan, Chapter 7). These types of benefits are consistent with the travel time, reliability, safety, modal and geographic connectivity, and transportation cost benefits described in the Fresno to Bakersfield Section Final Project FEIR/FEIS. The approximately 118-mile long corridor between Fresno to Bakersfield is an essential part of the statewide HST System. This section is a critical step to providing a new transportation mode that will enhance mobility in California. The cities of Fresno and Bakersfield will continue to be major economic growth centers in the Central Valley, and with the region's continued reputation for agricultural production will see increasing travel demand. The HST affords a more energy-efficient choice for personal travel that will help alleviate highway congestion and provide greater capacity for goods movement. With the HST as a backbone for the state's transportation infrastructure, there are also new opportunities for transit connectivity and refocusing land use patterns that can take advantage of mass transit investment and other alternatives to automobile travel, reducing greenhouse gas emissions and moving the state closer to the "sustainable community" goals laid out in Senate Bill 375 (FEIR/FEIS, Chapters 1, 2, and 3.2.)

In addition, the Revised 2012 Business Plan and Draft 2014 Business Plan include employment information assuming a Phase 1 Blended System, developed in a phased pattern as described in the Business Plan. According to the Revised 2012 Business Plan, the first construction of the Initial

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Operating Section would create 100,000 job years of employment between 2013 and 2018 (Revised 2012 Business Plan, page 9-11). Constructing the Phase 1 Blended System would generate an additional 900,000 job-years of employment beyond the original 100,000, for a total of approximately 1 million job years. A Full Phase 1 System would provide a total 1.25 million job years of employment during construction (Revised 2012 Business Plan, page 9-12). Once operational, the Phase 1 Blended System would directly employ about 2,900 people for operations and maintenance jobs. A Full Phase 1 system would directly employ about 3,500 people for operations and maintenance (Revised 2012 Business Plan, page 9-13). These employment benefits are documented further in the Business Plan's Economic Impact Analysis Report, April 2012. The Draft 2014 Business Plan exhibits the same economic and employment trends as demonstrated in the Revised 2012 Business Plan.

V. ENVIRONMENTAL AND ECONOMIC CONSEQUENCES OF NO HIGH-SPEED TRAIN

The 2005 Statewide Program EIR/EIS and the Fresno to Bakersfield Section Final Project FEIR/FEIS considered the environmental and economic costs of providing for the anticipated demand for transportation capacity in California through a high-speed train system, expanding airports and highways, or by doing nothing. The results of that evaluation concluded that the high-speed train was environmentally and economically superior (2005 Statewide Program EIR/EIS, page S-10). Additional work for the Revised 2012 Business Plan and the Draft 2014 Business Plan, examined the related question of the economic costs of providing the same transportation capacity that the Phase 1 system would offer through expansion of freeways and airports. This analysis concluded that the high-speed train option would be less costly (Comparison of Providing Equivalent Capacity to High-Speed Rail through Other Modes, April 2012).

VI. CONCLUSION

The benefits discussed above are not the sole benefits of the high-speed train system. The Fresno to Bakersfield Section Final Project FEIR/FEIS describes additional benefits in the areas of transportation connectivity, land use planning benefits, safety benefits, and social benefits. In addition, the environmental benefits discussed above, whether examining the Fresno to Bakersfield Section Final Project FEIR/FEIS, the Revised 2012 Business Plan, or the Draft 2014 Business Plan levels will in fact continue to accrue annually, and increase as the level of ridership on the HST system builds over time. Construction of the HST provides the opportunity for continuing benefits for decades into the future.

